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Interpreting Gobbledygook under 35 U.S.C. § 101: Does the 2019 Patent Eligibility Guidance Clarify Past Confusion?

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INTERPRETING GOBBLEDYGOOK UNDER 35 U.S.C. § 101: DOES THE 2019 PATENT ELIGIBILITY GUIDANCE CLARIFY PAST CONFUSION?

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I. INTRODUCTION

When determining a patent's eligibility, the judiciary creates the same effect as spinning the Wheel of Fortune¹ in leaving behind an impenetrable, and at best, cloudy means to the end, thus creating a sense of unpredictability and eliminating hope for anything resembling consistency. The U.S. Patent and Trademark Office's ("PTO") 2019 Patent Eligibility Guidance ("2019 PEG")² does not fully resolve the befuddled remains of federal courts' vigilant attempts to apply 35 U.S.C. § 101³ in patent-eligibility decisions.⁴ Conflicting guidance for eligibility leaves ambiguity in identifying subject matter that constitutes an "improvement to the functioning of a computer or to any other technology or technological field," and disincentivizes innovation due to unpredictable standards.⁵

This Comment discusses how considerations in federal court decisions demonstrate discrepancies in the application of tests for patent eligibility.

1. *Wheel of Fortune* (Sony Pictures Studios television broadcast).

2. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 50 (Jan. 7, 2019) (setting forth a new standard for patent eligibility).

3. 35 U.S.C. § 101 (2018).

4. *See, e.g., Cleveland Clinic Found. v. True Health Diagnostics LLC*, 760 F. App'x 1013, 1020 (Fed. Cir. 2019) (highlighting the need for more consistent standards for eligibility).

5. MPEP (9th ed. Rev. 24, Jan. 2018) § 2106.05(a).

This Comment highlights the need for a consistent standard for patent eligibility.⁶ Patent eligibility involves determining whether a claim is directed toward a judicial exception (i.e., law of nature, natural phenomena, or abstract idea) and whether the claim directed toward a judicial exception fails to amount to significantly more than the judicial exception.⁷ This Comment focuses primarily on abstract ideas in discussing judicial exceptions and patent eligibility.

Part II references eligibility standards under case law and the 2019 PEG. Part III analyzes possible interpretations of improvements to technology under conflicting standards and the implications of such tension. Part IV argues that Congress must define a new standard for eligibility and improvements to technology.⁸

II. THE STAIRWAY TO ELIGIBILITY UNDER 35 U.S.C. § 101

35 U.S.C. § 101 acts as a gatekeeper for patents.⁹ Following the legislature's definition of patent-eligible subject matter, the federal courts contrived phrases such as "judicial exceptions" and "abstract ideas," and have significantly narrowed the realm of eligible subject matter in incremental revelations.¹⁰ In *Kewanee Oil Co. v. Bicron Corp.*,¹¹ the U.S. Supreme Court discussed the inventions that claim processes and highlighted that processes, in general, are appropriate subjects for consideration under 35 U.S.C. § 101.¹² In particular, the *Kewanee* court noted that claims of a

6. See *Cleveland Clinic Found.*, 760 F. App'x at 1020 (opining there is a need for a more consistent standard in determining eligibility).

7. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 50.

8. See *Funk Bros. Seed Co. v. Kalo Inoculant Co.*, 333 U.S. 127, 130 (1948) (highlighting the dangers of monopolizing technology by granting patents to seekers who merely describe technological objectives).

9. 35 U.S.C. § 101 (2018); see also *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 217 (2014) (applying the "new and useful" portion of 35 U.S.C. § 101 to determine patent eligibility); *Landmark Patent Decisions in the US that Shaped Patent Laws*, GREYB, <https://www.greyb.com/landmark-patent-decisions-us/> (last visited Apr. 6, 2020) (discussing the difficulty in overcoming eligibility rejections).

10. See David O. Taylor, *Confusing Patent Eligibility*, 84 TENN. L. REV. 157, 243 (2016) (opining that the restrictions on eligibility will dissuade investors); see also H. Jared Doster, *The English Origins of the Judicial Exceptions to 35 U.S.C. § 101*, AM. BAR ASS'N, https://www.americanbar.org/groups/intellectual_property_law/publications/landslide/2018-19/march-april/english-origins-judicial-exceptions-35-usc-section-101/ (last visited June 14, 2020) (contending that judicial exceptions are concepts taken by the U.S. Supreme Court from English common law).

11. 416 U.S. 470 (1974).

12. *Id.* at 474–75 (suggesting that processes qualified as patentable subject matter under 35 U.S.C. § 101).

statutory category sufficed for purposes of eligibility.¹³ However, this understanding of the *Kewanee* court is a far cry from other U.S. Supreme Court decisions, which restricted statutory subject matter within statutory classes.¹⁴ *Funk Bros. Seed Co. v. Kalo Inoculant Co.*¹⁵ notably narrowed products that could be deemed eligible subject matter.¹⁶ Further, inventions directed toward judicial exceptions do not constitute patent-eligible subject matter under current federal court standards.¹⁷ That is, an invention, such as a method for sending messages, does not constitute patent-eligible subject matter in and of itself.¹⁸ Such methods merely applied to the internet setting would not suffice for overcoming an abstract idea.¹⁹ Determinations of whether an invention is directed toward a judicial exception derive from the inclusion of “useful” in 35 U.S.C. § 101, the ambiguity of which has led to years of dispute and discrepancy.²⁰

a. Federal Courts’ Undefined Analysis of Abstract Ideas

Since the phrase “abstract idea” is undefined, the federal courts use precedent for determining whether inventions are directed toward abstract ideas.²¹ The federal courts currently follow a test set forth under *Alice Corp.*

13. *Id.* at 476–78 (discussing requirements for patentability, including claims of statutory classes).

14. *See* *Gottschalk v. Benson*, 409 U.S. 63, 67–68 (1972) (restricting the realm of eligible process patents under reasoning from the *Funk Bros.* Court); *Parker v. Flook*, 437 U.S. 584, 594–95 (1978) (contending that claiming a specific purpose does not necessarily save an ineligible process claim).

15. 333 U.S. 127 (1948).

16. *See id.* at 132 (deciding that advantages of mixed inoculants were not sufficient to accord with eligibility standards).

17. *See, e.g., Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (warning against monopolization of judicial exceptions by restricting the realm of eligible subject matter).

18. *See, e.g., Windy City Innovations, LLC v. Facebook, Inc.*, 411 F. Supp. 3d 886, 898 (N.D. Cal. 2019) (finding that the claim is directed to the abstract idea of sending and displaying a message).

19. *See A Pty Ltd. v. eBay, Inc.*, 149 F. Supp. 3d 739, 746 (W.D. Tex. 2016) (determining that a patent for verifying email addresses was directed toward the abstract idea of verifying destinations).

20. *See generally* William Gvoth, *2019 Has So Far Shown a Continued State of Flux for 35 U.S.C. § 101*, SQUIRE PATTON BOGGS: GLOB. IP & TECH. L. BLOG (July 11, 2019), <https://www.iptechblog.com/2019/07/2019-has-so-far-shown-a-continued-state-of-flux-for-section-35-u-s-c-%C2%A7101/> (describing a draft bill to reform 35 U.S.C. § 101 that redefines “useful” and alters the process for judicial subject matter eligibility determinations).

21. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016) (stating the Federal Circuit must compare challenged patents to precedent since the U.S.

v. *CLS Bank International*²² and *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*²³ (“*Alice/Mayo* test”) to determine whether inventions are patent-eligible.²⁴ The test begins with a determination as to whether the claims recite a statutory category (“Step 1”) (i.e., machine, method, system, or composition of matter).²⁵ If the claims recite a statutory category, courts then determine whether the claims are directed toward a judicial exception (“Step 2A”).²⁶ If the claims are directed toward a judicial exception, courts determine whether the claims offer significantly more than the judicial exception, thus reciting an inventive concept (“Step 2B”).²⁷ An inventive concept may be found from the unconventional arrangement or activities of elements (i.e., structural components such as computers or sensors).²⁸

i. The Birth of Business Method Patents

*Gottschalk v. Benson*²⁹ further defines patent eligibility from the standard set forth by Congress under 35 U.S.C. § 101, contending that a process qualifies for consideration if it: (1) is implemented by a particular machine in a non-conventional and non-trivial manner; or (2) transforms an article from one state to another.³⁰ In *Gottschalk*, the Court invalidated a patent for programming a generic computer to convert signals from binary-coded decimal form into pure binary form.³¹ The *Gottschalk* court did not discuss the merits of business method inventions; however, the Court’s finding that the computerized method amounted to ineligible subject matter narrowed the

Supreme Court has yet to define an abstract idea).

22. 573 U.S. 208 (2014).

23. 566 U.S. 66 (2012).

24. See, e.g., *Netflix, Inc. v. Rovi Corp.*, 114 F. Supp. 3d 927, 951 (N.D. Cal. 2015) (applying the *Alice/Mayo* test and finding that the claim limitations failed to disclose an inventive concept), *aff’d*, 670 F. App’x 704 (Fed. Cir. 2016).

25. See *Alice Corp.*, 573 U.S. at 216 (stating the statutory categories of “process, machine, manufacture, or composition of matter” and contending that a claim must first fall in a statutory category to be considered for patentability).

26. See *id.* (instructing courts to determine whether a claim to a statutory class is directed to a patent-ineligible concept).

27. See *Thales Visionix, Inc. v. United States*, 850 F.3d 1343, 1348–49 (Fed. Cir. 2017) (finding that the unconventional arrangement of sensors amounted to significantly more than the abstract idea of determining positions).

28. *Id.* at 1348.

29. 409 U.S. 63 (1972), *rev’g*, 441 F.2d 682 (1971).

30. See *id.* at 69–70 (finding that a practice is not ineligible if there exists a particular machine or a transformation).

31. *Id.* at 71–72.

chances of eligibility for business method patents.³² Here, the *Gottschalk* court decided that the challenged claims were directed toward an algorithm applied to a computer, and thus, were not limited to any type of machinery or a transformation of substance, and if patented, would preempt the use of the mathematical formula.³³

*State Street Bank & Trust Co. v. Signature Financial Group, Inc.*³⁴ is the first milestone case regarding the patentability of business method patents.³⁵ Prior to *State Street Bank*, the PTO rejected business method patents as claiming abstract ideas.³⁶ The *State Street Bank* court allowed business method patent inventions to be treated the same as any other patent invention in finding that the eligibility test should be directed toward a “useful, concrete, and tangible result” test rather than a “business versus technology” test.³⁷ As such, the patent challenged in *State Street Bank* amounted to eligible subject matter, regardless of its categorization under business methods.³⁸ In 2010, *Bilski v. Kappos*³⁹ rendered the “machine-or-transformation” test set forth in *Gottschalk* inadequate as the primary test for patentability, thereby restricting the realm of eligibility.⁴⁰

32. See Kristian Sullivan, *A Work in Progress: The Ever [or Never] Changing Role of the Machine-or-Transformation Test in Determinations of Patentable Subject Matter Under 35 U.S.C. § 101*, 12 HOUS. BUS. & TAX L.J. 362, 384 (2012) (contending that business method patents must reflect the machine-or-transformation test along with other U.S. Supreme Court considerations to qualify for potential patent eligibility).

33. *Gottschalk*, 409 U.S. at 71–72 (finding that use of a computer was not necessitated, and the invention’s patent would amount to a patent on the formula itself).

34. 149 F.3d 1368 (Fed. Cir. 1998), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

35. *Id.* at 1373, 1375 (opening the realm of eligibility to business method patents).

36. See *id.* at 1375, 1377 (drawing upon the “useful” language of patent law to determine that business method patents are not non-statutory); see also *AT&T Corp. v. Excel Commc’ns, Inc.*, 172 F.3d 1352, 1361 (Fed. Cir. 1999) (affirming the finding that business method patents are not in and of themselves non-statutory), *abrogated by In re Bilski*, 545 F.3d 943 (Fed. Cir. 2008).

37. Ebby Abraham, *Bilski v. Kappos: Sideline Analysis from the First Inning of Play*, 26 BERKELEY TECH. L.J. 15, 33 (2011) (contending that the *State Street Bank* court rejected the business method exception to patentability in finding that business method inventions may be patentable).

38. *State St. Bank*, 149 F.3d at 1377 (finding that the patent for managing mutual fund investment structure amounted to eligible subject matter).

39. 561 U.S. 593 (2010) (determining that a particular machine or transformation is not in and of itself an eligibility test).

40. *Id.* at 603–04; see also Abraham, *supra* note 37, at 41–42 (contending that the *Bilski* court denounced the business method exception for patentability).

ii. The Alice/Mayo Effect on Business Method Patents

In 2014, examiners reopened several business method patents and determined that inventions should be rendered ineligible in light of *Alice*.⁴¹ The *Alice* court primarily relied on the decision in *Mayo* to restrict eligible subject matter to the furthest point in the history of business method patents.⁴²

The *Alice/Mayo* test was adopted by federal courts and implemented in the PTO.⁴³ Examiners relied on the Manual of Patent Examining Procedure (“MPEP”) and case law for determinations of eligibility under the *Alice/Mayo* test, whereas courts are bound by federal precedent.⁴⁴ In determining what the pending claim is “directed to” under the second step of the *Alice/Mayo* test, Step 2A, examiners and courts often found that claims could be simplified to abstract ideas such as “determining,” “comparing,” “generating,” etc.⁴⁵ Less subject matter than ever before is eligible under *Alice*, and therefore, patent seekers and holders in business methods negatively received the test.⁴⁶

41. See Jasper L. Tran, *Two Years After Alice v. CLS Bank*, 98 J. PAT. & TRADEMARK OFF. SOC’Y 354, 358 (2016) (disclosing an invalidation rate of approximately sixty-six percent as of June 2016 following the *Alice* court’s decision).

42. See *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 87–88 (2012) (outlining considerations in eligibility that further restricted the realm of eligible subject matter).

43. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 217–18, 221 (2014) (outlining the *Alice/Mayo* test); *Mayo Collaborative Servs.*, 566 U.S. at 73 (finding that mere application of a system or method on generic computing components is not sufficient to overcome the abstraction); see also MPEP (9th ed. Rev. 24, Jan. 2018) § 2106.05(a).

44. See *Cleveland Clinic Found. v. True Health Diagnostics LLC*, 760 F. App’x 1013, 1020 (Fed. Cir. 2019) (declining to follow PTO guidelines in light of U.S. Supreme Court precedent).

45. See Christian Dorman, “*One If by Land, Two If by Sea*”: *The Federal Circuit’s Oversimplification of Computer-Implemented Mathematical Algorithms*, 2018 U. ILL. J.L. TECH. & POL’Y 285, 292–93 (2018) (finding that the simplification of claims to abstract gerunds regardless of computer components leads to higher rates of invalidation); Rebecca Lindhorst, Note, *Two-Stepping Through Alice’s Wasteland of Patent-Eligible Subject Matter: Why the Supreme Court Should Replace the Mayo/Alice Test*, 69 CASE W. RES. L. REV. 731, 762 (2019) (“The test fails to provide objective guidelines and leaves the patent-eligibility determination to the subjective opinion of a judge or patent examiner.”).

46. See Hallie Wimberly, Comment, *The Changing Landscape of Patent Subject Matter Eligibility and Its Impact on Biotechnological Innovation*, 54 HOUSTON L. REV. 995, 1008 (2017) (referencing the restrictions on patent eligibility).

iii. “New” Take on Identifying Abstract Ideas

Prior to the implementation of the 2019 PEG, the courts and the PTO rejected and invalidated patents in tandem.⁴⁷ However, the PTO’s implementation of the 2019 PEG divorced the PTO from federal courts and their adherence to the *Alice/Mayo* test.⁴⁸

The 2019 PEG is based on the *Alice/Mayo* test to determine patent eligibility, but it altered the step for determining whether a claim of an invention is directed toward a judicial exception.⁴⁹ In particular, the 2019 PEG now advises two parts to Step 2A.⁵⁰ That is, instead of determining whether the claims are “directed to” an abstract idea as in the *Alice/Mayo* test, examiners under the 2019 PEG now determine whether the claim recites an abstract idea under the first part of Step 2A of the eligibility test (“Step 2A Prong 1”).⁵¹ Examiners then determine whether the claim integrates the abstract idea into a practical application under the second part of Step 2A of the eligibility test (“Step 2A Prong 2”).⁵²

The 2019 PEG offers a series of considerations for determining whether an invention is eligible and highlights a practical application of an abstract idea in rendering inventions patent-eligible.⁵³ The analysis of the practical application represents a more streamlined and consistent determination of

47. See Chad J. Hammerlind, *Patent Eligibility Used as the Federal Circuit’s Shuttlecock in Weekly Badminton Match*, 31 No. 6 INTELL. PROP. & TECH. L.J. 8, 8 (explaining that examiners are rendering more cases eligible under the 2019 PEG but that this change is separating the PTO from federal courts).

48. See Russell Slifer, *The Federal Circuit Just ‘Swallowed All of Patent Law’ in ChargePoint v. SemaConnect*, IP WATCHDOG (Apr. 2, 2019), <https://www.ipwatchdog.com/2019/04/02/federal-circuit-just-swallowed-patent-law-chargepoint-v-semaconnect/id=107917/> (contending that a patent may be issued under the 2019 PEG but will be out of line with the courts); see, e.g., J. Jonas Anderson, *Applying Patent-Eligible Subject Matter Restrictions*, 17 VAND. J. ENT. & TECH. L. 267, 279–86 (2015) (highlighting alternative tests based on a host of other concerns).

49. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 50 (Jan. 7, 2019) (relying on the *Alice/Mayo* rationale).

50. *Id.* at 53–54.

51. See *id.* at 54 (advising that the purpose of the new guidance is to streamline the eligibility analysis and finding that the “directed to” consideration under *Alice/Mayo* is inefficient and subjective).

52. See *id.* (defining that a practical application exists where there is, *inter alia*, improvement to other technology or technological field, improvement to computer functionality, and a meaningful limitation); see also *Trading Techs. Int’l, Inc. v. IBG LLC*, 921 F.3d 1084, 1095 (Fed. Cir. 2019) (finding an improvement to interface technology).

53. See 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 54–55 (instructing examiners to follow a series of steps in determining eligibility).

eligibility under the 2019 PEG.⁵⁴

b. Improvements to Technology Under the Standards in Play

Although the federal courts have yet to address the merits of the 2019 PEG, the U.S. District Court for the District of Delaware did suggest that the 2019 PEG can deliver different outcomes than the *Alice/Mayo* test.⁵⁵ The PTO set forth examples to accompany the 2019 PEG to clarify subject matter eligibility and the District Court of Delaware acknowledged a discrepancy between one example under the 2019 PEG and federal court standards.⁵⁶ Example 40 of the 2019 PEG discloses adaptive monitoring of network traffic data and is a practical application of the judicial exception because the claims present an improvement to network monitoring.⁵⁷ Therefore, Example 40 constitutes patent-eligible subject matter.⁵⁸ Conversely, the district court in *Citrix Systems, Inc. v. Avi Networks, Inc.*⁵⁹ found similar claims to be ineligible under the *Alice/Mayo* test for failing to recite significantly more than a complex abstraction using conventional computing components.⁶⁰ In acknowledging the similarity of the challenged claims to those of Example 40, the district court did not attempt to rectify the different outcomes, but rather concluded that the courts were bound by the *Alice/Mayo* test over the 2019 PEG.⁶¹ Successful prosecution at the PTO may be short-

54. See *id.* (instructing examiners to replace the “directed to” determination of the *Alice/Mayo* test and the comparison of claims to case law with two prongs for determining whether the claim recites abstract ideas, and if so, whether the claim integrates the abstract idea into a practical application).

55. See *Citrix Sys., Inc. v. Avi Networks, Inc.*, 363 F. Supp. 3d 511, 525 n.2 (D. Del. 2019) (acknowledging that the claims invalidated by the present court are similar to Example 40 of the 2019 PEG representing patent-eligible subject matter).

56. See *id.* (noting the divide between the PTO examples and the decision of the District Court of Delaware). See generally U.S. PATENT & TRADEMARK OFFICE, SUBJECT MATTER ELIGIBILITY EXAMPLES: ABSTRACT IDEAS (2019) (disclosing eligible and ineligible examples, numbered 37–42, of patent claims).

57. See U.S. PATENT & TRADEMARK OFFICE, *supra* note 56, at 10–11 (determining under the 2019 PEG that the claim recited the statutory category of a process under Step 1, recited the judicial exception of a mental process under Step 2A Prong 1, and integrated the judicial exception into a practical application under Step 2A Prong 2).

58. *Id.*

59. *Citrix Sys., Inc.*, 363 F. Supp. 3d at 511.

60. *Id.* at 522 (finding the claims were directed toward an abstract idea and merely recited conventional computer activity under the *Alice/Mayo* test).

61. See *id.* at 521, 525 n.2 (suggesting that the two standards for eligibility deliver different outcomes in acknowledging the similarities between Example 40 and the challenged claims).

lived as the federal courts give no deference to PTO eligibility standards.⁶²

i. Improvement to Technology Under Federal Case Law

Courts apply the “improvement” portion of the test by asking whether a technological solution to a technological problem exists.⁶³ When determining whether an improvement exists, the U.S. Court of Appeals for the Federal Circuit analyzes whether the invention itself aims to improve computer functionality or an existing technological field.⁶⁴ That is, claims may be patent-eligible in part due to the purported disclosure denoting benefits over prior art inventions.⁶⁵ However, *Ulramercial v. Hulu*⁶⁶ highlights the importance of claim language, thus reminding the patent community that any supposed benefits must further be embodied in the claims.⁶⁷

Alice establishes that merely employing a computer to effect some process or improvement is insufficient to render an invention patent-eligible.⁶⁸ The invention must satisfy the “harnessing” principle and effect a concrete application of the abstract idea.⁶⁹ In distinguishing determined

62. See *Cleveland Clinic Found. v. True Health Diagnostics LLC*, 760 F. App'x 1013, 1020 (Fed. Cir. 2019) (invalidating claims for being ineligible and declining to follow PTO guidelines in labeling similar subject matter eligible).

63. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016).

64. See *IBM Corp. v. Groupon, Inc.*, 289 F. Supp. 3d 596, 605–06 (D. Del. 2017) (distinguishing challenged claims from those of *Two-Way Media v. Comcast Cable Communications*, 874 F.3d 1329, 1337–38 (Fed. Cir. 2017), in finding that the challenged claims described the specific architecture behind the claimed computer improvement).

65. See, e.g., *Two-Way Media*, 874 F.3d at 1338 (determining that the claims were invalid for missing the inventive concept of technological innovations recited in the specification).

66. 772 F.3d 709 (Fed. Cir. 2014).

67. See *id.* at 715 (“We must examine the limitations of the claims to determine whether the claims contain an ‘inventive concept’ to ‘transform’ the claimed abstract idea into patent-eligible subject matter.”); see also *Voip-Pal.Com, Inc. v. Apple, Inc.*, 375 F. Supp. 3d 1110, 1145 (N.D. Cal. 2019) (finding arguments to improvement irrelevant since the “purported improvements have not been captured in the claim”).

68. See generally *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208 (2014) (finding that while “all inventions . . . embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas,” the claims must still pose significantly more than a monopolization of such concepts); *In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607 (Fed. Cir. 2016) (suggesting that disclosure of generic technologies in a nascent environment is insufficient to specify an improvement to technology).

69. See *McRO, Inc. v. Bandai Namco Games Am., Inc.*, 837 F.3d 1299, 1299, 1314 (Fed. Cir. 2016) (explaining that the abstract idea was harnessed in the animation field in a particular manner to claim an unknown benefit to the field).

improvements that harness abstract principles from concepts that invoke the use of a computer to achieve a result, case law advises that eligible inventions may specify ways in which a computer assists in the improvement of the technology.⁷⁰

*Diamond v. Diehr*⁷¹ is a milestone case for demonstrating when a computerized method offers an improvement to an existing technology.⁷² The invention in this case improved a technological field because it overcame a common technological problem in rubber molding processes.⁷³ Similarly, the invention in *Enfish, LLC v. Microsoft Corp.*⁷⁴ is an improvement to computer functionality in claiming a specific data structure for storing and retrieving data and offers relevant considerations in discerning improvements to technology, such as identifying the focus of the claim as a whole.⁷⁵ In particular, federal courts suggest that improvements to a technological tool pose improvements to technology.⁷⁶

In *Finjan Inc. v. Blue Coast Systems, Inc.*,⁷⁷ Blue Coast Systems challenged the eligibility of Finjan's patent for virus scanning and detection of previously unknown viruses. The *Finjan* court held that the challenged claims posed an improvement to technology because previous virus-scanning practices only recognized previously-identified viruses.⁷⁸ In particular, the invention in *Finjan* offered a technological solution to a

70. See *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1259 (Fed. Cir. 2014) (noting that the improved and particular method of data collection constituted an improvement to technology); see also *Affinity Labs of Tex., LLC v. DirecTV, LLC*, 838 F.3d 1253, 1256–57 (Fed. Cir. 2016) (finding that an advance in the process for downloading content for streaming purposes constitutes an improvement to technology).

71. 450 U.S. 175 (1981) (finding a new combination of steps to be patentable as an improvement in rubber molding technology even though all constituents of the combination were well known and in common use before the combination was made).

72. See *id.* at 188–89 (highlighting that the existence of conventional components does not bar eligibility).

73. *Id.* at 192–93 (contending that implementing mathematical formulas in a structure in which the patent laws purport to protect the claim may constitute eligibility).

74. 822 F.3d 1327 (Fed. Cir. 2016).

75. See *id.* at 1335 (concluding that the unconventional database drove the improvement to computer functionality).

76. See *A Pty Ltd. v. eBay, Inc.*, 149 F. Supp. 3d 739, 746 (W.D. Tex. 2016) (distinguishing between solving a problem in technology and implementing commercial practices in technology).

77. 879 F.3d 1299 (Fed. Cir. 2018).

78. *Id.* at 1304; see Memorandum from Robert W. Bahr, Deputy Comm'r for Patent Examination Policy, to Patent Examining Corps I (Apr. 2, 2018) [hereinafter *PTO Finjan Memorandum*] (establishing recent decisions indicating improvements to computer functionality and improvements to technology under *Alice/Mayo*).

problem that was not previously seen in the technological field.⁷⁹ Similarly, the Federal Circuit in *Core Wireless Licensing S.A.R.L. v. LG Electronics, Inc.*⁸⁰ found that claims of a graphical user interface for mobile devices displaying a summary window of each application while in an unlaunched state posed improvements to interfaces for devices.⁸¹ Instead of using conventional components to display a generic index, the claims are directed toward a specific manner of displaying a limited set of information on a mobile device.⁸²

ii. Improvement to Technology Under the 2019 PEG

When determining if a practical application exists in the invention, the 2019 PEG instructs examiners to determine whether “an additional element reflects an improvement in the functioning of a computer, or an improvement to other technology or technological field”⁸³ The “improvement to other technology or technological field” portion of the 2019 PEG sits among other considerations for determining whether there is a practical application and cites the MPEP and federal case law as support for asserted improvements.⁸⁴ There is still a question as to how an improvement to technology or technological field is recognized and defined.⁸⁵ Federal precedent provides examples against which examiners and attorneys may compare pending claims in determining whether improvements to technology or computer-functionality exist, but this practice leaves ample room for subjectivity in predicting eligibility.⁸⁶

79. See *Finjan, Inc.*, 879 F.3d at 1304 (finding that the invention amounted to significantly more than conventional approaches to virus scanning).

80. 880 F.3d 1356 (Fed. Cir. 2018).

81. *Id.* at 1363 (concluding benefits to user interfaces over the prior art).

82. *Id.*

83. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 55 (Jan. 7, 2019).

84. See *id.*; *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1265–66 (Fed. Cir. 2014) (finding that the display of the webpage design technology was an improvement to webpage designs); *Core Wireless Licensing S.A.R.L.*, 880 F.3d at 1363 (applying the *Alice/Mayo* test to determine that a graphical user interface posed technological improvements to conventional interfaces); *Finjan, Inc.*, 879 F.3d at 1304 (finding that there did exist an improvement in analyzing a downloadable code).

85. See MPEP (9th ed. Rev. 24, Jan. 2018) § 2106.05(a) (establishing considerations for determining improvements to technology while failing to disclose an explicit standard for such determinations).

86. *Compare* *McRO, Inc. v. Bandai Namco Games Am., Inc.*, 837 F.3d 1299, 1315–16 (Fed. Cir. 2016) (determining that automatic lip synchronization and facial expression animation using computer-implemented rules were an improvement to computer animation), and *DDR Holdings*, 773 F.3d at 1259 (finding that an improved, particular

iii. Inconsistencies within Federal Courts

TNS Media Research, LLC v. Tivo Research & Analytics, Inc.,⁸⁷ exemplifies the discrepancy in determining whether there exists an improvement to an existing technology.⁸⁸ The invention in this dispute involved a method for measuring the effectiveness of advertising in a fragmented digital environment.⁸⁹ A U.S. District Court for the Southern District of New York granted summary judgment on the issue of patent eligibility and determined that the patents were directed to ineligible subject matter under the *Alice/Mayo* test.⁹⁰ The court determined that the claims did not necessitate a tangible machine for collecting data and the claims lacked an inventive concept.⁹¹ Further, the alleged benefits disclosed in the specification were not claimed, and thus, unclaimed disclosures could not render claims patent-eligible.⁹²

TNS Media Research was reassigned to another district court in the Southern District of New York that used the same *Alice/Mayo* test to vacate the summary judgment.⁹³ The vacating court found that the claims in question did in fact require a computer and that the invention reflected in the claims purported improvements in data granulation.⁹⁴ The court analyzed the claims under Step 1 of the *Alice/Mayo* test and highlighted that the U.S. Supreme Court has not established a definitive rule for determining what subject matter constitutes an abstract idea.⁹⁵ The court further determined

method of digital data compression may constitute an improvement to technology), *with Alice Corp. Party Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 221 (2014) (deducing that a novel and non-obvious mental concept applied to a generic computer does not amount to an improvement in technology).

87. 223 F. Supp. 3d 168 (S.D.N.Y. 2016).

88. *TNS Media Research, LLC v. Tivo Research & Analytics, Inc.*, 166 F. Supp. 3d 432 (S.D.N.Y. 2016), *vacated*, 223 F. Supp. 3d 168 (S.D.N.Y. 2016); *see* *TNS Media Research, LLC v. Tivo Research & Analytics, Inc.*, 629 F. App'x 916, 942 (Fed. Cir. 2015) (remanding the case back to the district court where eligibility matters were discussed).

89. *TNS Media Research*, 223 F. Supp. 3d at 181.

90. *See TNS Media Research*, 166 F. Supp. 3d at 449–50 (concluding that the claims did not pose significantly more than the abstract idea).

91. *Id.* (finding that the claims could be performed by a human without a computer and did not purport to improve technology under the *Alice/Mayo* test).

92. *Id.*

93. *TNS Media Research*, 223 F. Supp. 3d at 171 (vacating the decision in 166 F. Supp. 3d 432).

94. *Id.* at 176–77, 182 (discussing the need for a computer and the granular character of the steps that allowed for improvements in data collection).

95. *Id.* at 178 (deciding that the Federal Circuit instead compares instant claims to those previously analyzed by the Federal Circuit in precedent cases).

that the vacated decision relied upon an overgeneralization of the claims to reduce the invention to nothing more than abstract concepts and failed to consider the components integrating the abstract concepts.⁹⁶ Namely, the reduction of the claims by the previous court to collecting, viewing, and purchasing of data could describe a plurality of eligible and ineligible inventions alike.⁹⁷ The dispute in *TNS Media Research* represented the vulnerability that inventions of methods purporting to improve technology face in eligibility standards.⁹⁸ The court decided that the claims are eligible as having solved a technological problem but failed to resolve the ambiguity among courts in coming to this conclusion.⁹⁹

Similarly, district courts in the Northern District of California disagree on inventions that constitute an improvement to technology. The court in *Immersion Corp. v. Fitbit, Inc.*,¹⁰⁰ in upholding a patent for haptic feedback in wearable devices, disagreed with the decision in *Fitbit, Inc. v. AliphCom*.¹⁰¹ In particular, this disagreement highlighted considerations of how an unconventional arrangement of technological tools may affect determinations of improvements to technology and whether inventions of methods are less likely to pose improvements to technology than inventions of other statutory classes.¹⁰² *Thales Visionix Inc. v. United States*¹⁰³ touches the matter and exemplifies how an unconventional arrangement of sensors can pose improvements to the positioning of objects on a moving platform.¹⁰⁴ Here, a method claim was deemed an improvement to technology since the unconventional nature of the technology rendered an improvement to the

96. See *id.* at 181–82 (contending that an invention must harness such principles in a meaningful composition).

97. See *id.* at 182 (highlighting that “virtually any invention can be reduced to a concept,” but the question is whether the invention offers significantly more than just an abstract concept).

98. See *id.* (expressing that method claims are especially vulnerable to overgeneralization).

99. See *id.* (asserting the invention passes step two of the *Alice/Mayo* test by resolving various technological problems but leaving open the improvement in technology question).

100. 313 F. Supp. 3d 1005 (N.D. Cal. 2018).

101. See *Fitbit, Inc. v. AliphCom*, No. 16-cv-00118-BLF, 2017 WL 819235, at *10 (N.D. Cal. Mar. 2, 2017) (finding that the method for activity monitoring failed to pose an improvement to a technological tool in the field of data monitoring).

102. See *Immersion Corp.*, 313 F. Supp. 3d at 1025–26 (citing *Thales Visionix, Inc. v. United States*, 850 F.3d 1343, 1348 (Fed. Cir. 2017)).

103. 850 F.3d 1343 (Fed. Cir. 2017).

104. *Id.* at 1348.

technological field.¹⁰⁵

Considerations of effects of unconventional arrangement of technological tools are further explored in *Bascom Global Internet Services, Inc. v. AT&T Mobility LLC*¹⁰⁶ and *Mortgage Grader v. First Choice Loan Services Inc.*¹⁰⁷ In *Bascom*, the Federal Circuit upheld a patent for internet filtering using generic computer tools.¹⁰⁸ Conversely, the Federal Circuit in *Mortgage Grader* invalidated a patent for evaluating loans using generic computer tools.¹⁰⁹

c. Sympathy for the Applicant

In *Cleveland Clinic Foundation v. True Health Diagnostics*,¹¹⁰ the Federal Circuit declined to follow the 2019 PEG, stating that it is not bound by the instructions set forth therein.¹¹¹ The *Cleveland* court also highlighted a need for consistent application of case law.¹¹² As such, patent eligibility is unpredictable because there are two different standards that are being applied.¹¹³ Applicants are expected to file patent applications under PTO regulations, and thus, must prosecute patents under the 2019 PEG for the purpose of eligibility.¹¹⁴ However, if the PTO grants a patent for the application and a litigant challenges the application in federal court, the court will refer to the prosecution history in part to determine validity.¹¹⁵ As the federal courts make eligibility determinations under *Alice/Mayo*, applicants

105. *Id.* at 1343.

106. 827 F.3d 1341 (Fed. Cir. 2016).

107. 811 F.3d 1314 (Fed. Cir. 2016).

108. *Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1350 (conveying that the specific method of filtering internet content was not conventional).

109. *Mortg. Grader, Inc.*, 811 F.3d at 1322 (determining that the claims merely added a computer to conventional steps).

110. 760 F. App'x 1013 (Fed. Cir. 2019).

111. *Id.* at 1019–20.

112. *Id.*

113. See generally Alexander T. Katsulis et al., *USPTO Clarifies Alice/Mayo Step 2A With New Patent Subject-Matter Eligibility Guidance*, K&L GATES (Jan. 10, 2019), <http://www.klgates.com/uspto-clarifies-alicemayo-step-2a-with-new-patent-subject-matter-eligibility-guidance-01-10-2019/?nomobile=perm> (stating that courts do not follow the standard set forth by the PTO).

114. See James J. DeCarlo & George David Zalepa, *The USPTO's New Section 101 Guidance: Progress or Pitfall?*, N.J.L.J. (May 10, 2019, 10:30 AM), <https://www.law.com/njlawjournal/2019/05/10/the-usptos-new-%24101-guidance-progress-or-pitfall/?slreturn=20190726013851> (instructing applicants to prosecute under the 2019 PEG while being mindful of potential arguments under *Alice/Mayo*).

115. E.g., *Cleveland Clinic Found.*, 760 F. App'x at 1019 (rejecting arguments under the 2019 PEG at the federal district court).

are likely to be at a disadvantage because they will need to have supplemented the prosecution record with arguments under *Alice/Mayo*.¹¹⁶ Applicants may further find eligibility successes at the PTO short-lived as the federal courts still apply a stricter standard.¹¹⁷

If applicants are unable to file under predictable standards, the patent system may see a decrease in filings as applicants search for other means of protection.¹¹⁸ Patents and trade secrets have historically overlapped in statutory subject matter, and businesses may seek more predictability in an area of intellectual property.¹¹⁹

III. CONFLICTING ELIGIBILITY PRECEDENT HAS MANGLED APPLICATIONS OF STANDARDS AMONG THE COURTS AND PTO

Prior to the PTO's implementation of the 2019 PEG, the federal courts and the PTO uniformly rejected patents as ineligible under the same mangled realm of patent law.¹²⁰ While the 2019 PEG draws upon the same precedent as used previously, its separation of considerations has generated a gap between federal court decisions and PTO practices.¹²¹ This gap leads to conflicting opinions in identifying improvements to technology and creates uncertainty for the patent community.

a. Redefining Standards for Improvements to Technology

An improvement to technology should be defined as an unconventional change to a technological tool that actuates a particular technological solution to a particular technological problem, wherein precise instructions for achieving the improvement are embodied in the claims.¹²² The foregoing

116. See DeCarlo & Zalepa, *supra* note 114 (suggesting that applicants must prepare for various arguments).

117. See *id.* (finding discrepancies between *Alice/Mayo* and the 2019 PEG).

118. See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 471 (1974) (“The risk of eventual patent invalidity by the courts and the costs associated with that risk may well impel some with a good-faith doubt as to patentability not to take the trouble to seek to obtain and defend patent protection for their discoveries, regardless of the existence of trade secret protection.”).

119. See *id.* (opining there is overlap across categories of intellectual property protection and that trade secret protection may produce more efficient rewards).

120. See Hammerlind, *supra* note 47 (discussing the growing split between the PTO and federal courts due to the implementation of the 2019 PEG).

121. See Slifer, *supra* note 48 (arguing that the Federal Circuit overruled the 2019 PEG).

122. See *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (highlighting the unconventional change as bolstering the determination of an improved database); see also *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 217 (2014)

elements for this proposed standard are as follows: (1) technological art; (2) unconventional change to a technological tool; and (3) a technological solution with precise limitations for resolving a technological problem.

i. Technological Art

In compiling the plethora of case law regarding improvements to technology, the underlying consideration is the identification of a technological art.¹²³ *In re Benson* defined technological arts in finding that computers, regardless of their use, are within the realm of technological arts.¹²⁴ Although the decision for patentability in *In re Benson* was reversed by *Gottschalk*, the standard for defining technological arts was not referenced.¹²⁵ However, federal courts have referenced computing components when discussing improvements to technology or computer functionality.¹²⁶ As such, the standard for technological arts is arguably a calculating component (i.e., a generic computing component such as a processor or memory) or a combination of calculating components in communication.¹²⁷ That is, a technological tool present in the claims satisfies a first step toward finding an improvement to technology.¹²⁸ However, the existence of a technological art is insufficient to render the claims an improvement if the technological tool is merely performing a conventional

(distinguishing between changes in technology and novel abstractions); *In re TLI Commc'ns LLC Patent Litig.*, 823 F.3d 607, 612 (Fed. Cir. 2016) (finding that generic technology in the nascent environment is not sufficient for specifying a particular solution).

123. See *Bridge & Post, Inc. v. Verizon Commc'ns, Inc.*, 778 F. App'x 882, 889 (Fed. Cir. 2019) (highlighting improvements to technology as, *inter alia*, inventing HTTP header fields, user identifiers, or encryption techniques).

124. *In re Benson*, 441 F.2d 682, 688 (1971) (“It seems beyond question that the machines — the computers — are in the technological field, are a part of one of our best-known technologies, and are in the ‘useful arts’ rather than the ‘liberal arts,’ as are all other types of ‘business machines,’ regardless of the uses to which their users may put them.”); *Diamond v. Diehr*, 450 U.S. 173, 200–01 (1981) (citing *In re Benson*, 441 F.2d 682, (1971)) (stating that the invention must do more than merely use a technological art).

125. See *Diamond*, 450 U.S. at 201 (contending that the standard set forth in *In re Benson* has not been overturned).

126. See *Enfish, LLC*, 822 F.3d at 1335 (highlighting improvements to technological arts, such as an LED display and chip architecture, and contending that the unconventional database was an improvement to a technology that led to the improvement of computer functionality).

127. See *Intellectual Ventures I LLC v. Erie Indem. Co.*, 850 F.3d 1315, 1328 (Fed. Cir. 2017) (suggesting that the database is the technological art to be improved).

128. See *Fitbit, Inc. v. AliphCom*, No. 16-CV-00118-BLF, 2017 WL 819235, at *10 (N.D. Cal. Mar. 2, 2017) (arguing that improvements must be made to a technological tool).

activity.¹²⁹

ii. Unconventional Change to a Technological Tool

Alice distinguished between merely applying concepts to the computing field and activating a change to the computing field or to a technology itself.¹³⁰ That is, the *Alice* court found that the mere existence of computing devices in the invention was insufficient to render the claims an improvement because the computing devices were paired with novel and non-obvious abstract concepts.¹³¹ Conversely, the Federal Circuit in *Enfish* found an improvement to technology in claims directed toward a self-referential database.¹³² In that case, the court distinguished the challenged claims from those deemed ineligible in *Alice* by finding that the challenged claims are directed toward a database that functions differently than other database structures and that the change generated benefits to the technology.¹³³

Federal courts, while not explicitly conflating the “conventional” analysis with the “improvement” analysis, deduce improvements in part from determinations of unconventional activity.¹³⁴ Essentially, federal courts have generally found that claims to an invention do not amount to an improvement to a technology or technological field when the claims merely employ generic computer implementation in a conventional or known

129. See *TS Patents LLC v. Yahoo!, Inc.*, 279 F. Supp. 3d 968, 986 (N.D. Cal. 2017) (rejecting the instant claims as improvements to technology because the claims failed to specify improvements to “folder” or “data object” storage itself), *aff’d*, 731 F. App’x 978 (Fed. Cir. 2018).

130. See *In re TLI Commc’ns LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016) (finding that a hardware component failed to transform the instant claims to patent-eligible subject matter because asserted improvements were not to a technology but rather were applied to a technological field).

131. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 304–05 (2014) (distinguishing between an improved concept merely applied to technology and an improvement to technology itself); see also *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) (“[A] claim for a *new* abstract idea is still an abstract idea.”).

132. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1337, 1339 (Fed. Cir. 2016) (finding that the claims set forth precise instructions for achieving a change from conventional databases that led to increased flexibility, faster search times, and smaller memory requirements).

133. *Id.* at 1338 (contrasting the generic computer components of *Alice*).

134. *Id.* at 1337 (“[O]ur conclusion . . . [of] an improvement . . . is bolstered . . . [and] achieves other benefits over conventional databases”); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1364 (Fed. Cir. 2015) (contending that conventional computer activities do not constitute an improvement).

manner.¹³⁵ *Mortgage Grader* exemplifies the considerations of conventional versus unconventional elements in finding that merely reciting generic computers performing known functions does not make an otherwise ineligible invention patent-eligible.¹³⁶ Rather, the claims must effect an improvement to the functioning of a computer itself or an improvement to any other technology or technological field in order to be patent-eligible.¹³⁷ There must be an unconventional change within a technological tool to effect an improvement over what is currently known in industry.¹³⁸ *Bascom* further considers this notion in finding that a solution requiring “generic” components may still be patent-eligible when operating in a non-conventional manner to achieve and improve an advancement over the prior art.¹³⁹

The Federal Circuit in *Mortgage Grader* and *Bascom* arrived at different conclusions of eligibility with respect to the challenged claims of each case.¹⁴⁰ There is a substantial difference between the “generic elements” of *Bascom* and those of *Mortgage Grader*.¹⁴¹ The “unconventional”

135. See *TNS Media Research LLC v. Tivo Research & Analytics, Inc.*, 223 F. Supp. 3d 168, 179 (S.D.N.Y. 2016) (finding that conventional activity may constitute failure to effect an improvement), *vacating* 166 F. Supp. 3d 432 (S.D.N.Y. 2016); see, e.g., *Versata Dev. Grp., Inc. v. SAP Am., Inc.*, 793 F.3d 1306, 1334 (Fed. Cir. 2015) (finding no unconventional software in achieving the alleged solution); *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1371 (Fed. Cir. 2015) (explaining that a departure from conventional sequences may be indicative of improvements).

136. *Mortg. Grader, Inc. v. First Choice Loan Servs., Inc.*, 811 F.3d 1314, 1325 (Fed. Cir. 2016) (citing *Alice*, 573 U.S. at 225–26).

137. *Id.* (finding that the claims were directed to the business idea of anonymous loan shopping and did not purport to improve a computer or technology).

138. *Compare CardioNet, LLC v. Scottcare Corp.*, 388 F. Supp. 3d 442, 459 (E.D. Pa. 2019) (determining that the claims employ conventional technology, and thus, did not amount to an improvement), *with Enfish, LLC*, 822 F.3d at 1330 (finding an unconventional change to a self-referential table leading to improvements in the database).

139. *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1343, 1350 (Fed. Cir. 2016) (setting forth the standard that the mere existence of generic computer components does not bar patentability); see *Citrix Sys., Inc. v. Avi Networks, Inc.*, 363 F. Supp. 3d 511, 516, 522 (D. Del. 2019) (searching for an unconventional arrangement of technological elements).

140. *Compare Mortg. Grader, Inc.*, 811 F.3d at 1325 (Fed. Cir. 2016) (concluding that the claims are directed to an abstract idea and fail to provide an inventive concept), *with Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1352 (concluding that the claims are directed to an abstract idea but do provide an inventive concept in the ordered combination of claim limitations).

141. *Compare Mortg. Grader, Inc.*, 811 F.3d at 1324–25 (finding that the claims merely add an interface, a network, and a database and do not purport to improve any technology), *with Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1350–51 (finding that

arrangement of elements differentiates an ineligible claim employing generic computer components from an eligible claim employing generic computer components.¹⁴²

iii. Technological Solution to a Technological Problem

After identifying whether an unconventional change to a technological art exists, the next step is to determine whether there is a technological problem to be improved.¹⁴³ In particular, *A Pty Ltd. v. eBay*¹⁴⁴ establishes that addressing a long-standing problem in a computer setting is not sufficient in itself to constitute a problem to be improved.¹⁴⁵ For business method purposes, merely addressing a long-standing business practice in a conventional technological environment may equate to merely applying a mental concept to a known computing field.¹⁴⁶ Such practices do not constitute actuating a change to a technological tool to purport technological benefits.

If technological problems necessitating improvements exist, then there must be a particular solution in determining improvements to technology or another technological field.¹⁴⁷ Such solutions could emulate those seen in *English* or *DDR Holdings*, where the improvements to technology led to

the ordered combination of limitations presented an improvement to filtering content).

142. See *Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1350 (highlighting the test for whether there exists an unconventional arrangement of elements for Step 2B of the *Alice/Mayo* test).

143. See *TNS Media Research LLC v. Tivo Research & Analytics, Inc.*, 223 F. Supp. 3d 168, 174 (S.D.N.Y. 2016) (finding that the invention was an improvement to the granulation of data and was indeed patent-eligible over the current state of the technology for the data gathering); *Citrix Sys., Inc.*, 363 F. Supp. 3d at 522 (searching for a problem specifically arising in a technological field).

144. 149 F. Supp. 3d 739 (W.D. Tex. 2016).

145. See *id.* at 746 (highlighting that there must exist specificity in identifying a technological problem and solution such that the claims must not merely purport to claim a technological objective); see also *id.* at 743 (finding that asserted improvements must be specific in the claim language); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014) (concluding that the instant claims failed to improve the advertising technology).

146. See *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 221–22 (2014) (concluding that applying the abstract idea of intermediated settlement using a generic computer is insufficient to meet the standards for eligibility).

147. See *McRO, Inc. v. Bandai Namco Games America, Inc.*, 837 F.3d 1299, 1303, 1315–16 (Fed. Cir. 2016) (finding that the animation technology could not previously perform the synchronizations seen in the instant claims); *Ultramercial, Inc.*, 772 F.3d at 715–16 (determining whether the claims generally describe a technological objective or set forth a precise set of instructions for achieving the technological objective).

improvements in computer functionality.¹⁴⁸ In particular, the improved database in *Enfish* amounted to an improvement to technology that mitigated larger memory requirements.¹⁴⁹ Similarly, the improved method of digital data compression in *DDR Holdings* amounted to an improvement in technology that allowed dual-source hybrid web pages.¹⁵⁰ In sum, the particular solution may be improved computer functionality superseding that which was previously known in the art.

The “particular” portion of the particular solution comes from a “harnessing” test such that the invention sets forth precise instructions for achieving the technological objective.¹⁵¹ *Ultramercial* establishes that the general-description-versus-precise-instructions generates a categorizing effect such that inventions may pose improvements to technology or technological fields depending on the outcome.¹⁵²

Similarly, *Funk Bros. Seed Co. v. Kalo Inoculant Co.*¹⁵³ highlights the dangers of monopolizing technology by declaring patent eligibility for inventions that generally describe technological objectives, and thus, fail to set forth precise instructions for achieving the objective.¹⁵⁴ As such, applicants see an unavoidable catch-22 in seeking more protection with broad claim language and purporting eligibility with narrowed claim language such that claims are not rendered abstract for merely describing

148. See, e.g., *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1339 (Fed. Cir. 2016) (finding an improvement to computer functionality rather than mere economic or business improvements for which a computer is used in its conventional capacity); *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1258–59, 1265 (Fed. Cir. 2014) (finding that the claims recited a specific way to automate webpage creation by an outside party and include elements from various sources, thus resolving a particular internet-based problem).

149. *Enfish, LLC*, 822 F.3d at 1339 (finding a specific implementation of a solution in software arts).

150. *DDR Holdings*, 773 F.3d at 1258–59, 1265.

151. See *Alice Corp. Pty. Ltd.*, 573 U.S. at 216 (disclosing that while natural laws, scientific principles, and abstract ideas underly all of innovation, such judicial exceptions must be harnessed such that they are used to solve seemingly intractable problems); see also *McRO, Inc.*, 837 F.3d at 1309 (finding that the abstract idea was harnessed in the animation field in a particular manner such that an unknown benefit to the field was asserted in the claims); *Citrix Sys., Inc. v. Avi Networks, Inc.*, 363 F. Supp. 3d 511, 522 (D. Del. 2019) (contending that a claim is not directed to an improvement if the technological benefit solely arises from an abstract idea applied to a well-understood structure).

152. *Ultramercial, Inc.*, 772 F.3d at 715 (finding precise limitations for improved user interfaces).

153. 333 U.S. 127 (1948).

154. *Id.* at 13031.

objectives.¹⁵⁵ Therefore, the claims must at least add specific disclosures when addressing a technological challenge in aiming for eligibility via improvements to technology.¹⁵⁶ Moreover, case law demonstrates that improvements to technology may not be identified if the entirety of the improvements is only reflected in the specification.¹⁵⁷ The owner is granted protection over the claim language, and thus, the claim must embody the improvement. The claims need not recite the improvements verbatim.¹⁵⁸ However, the claim must cover such considerations in light of the specification.¹⁵⁹

The “harnessing test” establishes that there must be a concrete application of technological solutions to technological problems.¹⁶⁰ While abstract concepts such as scientific principles (e.g., laws of gravity) are a baseline for innovation, any determined inventive concept must harness the technological

155. See *Voip-Pal.Com, Inc. v. Apple, Inc.*, 375 F. Supp. 3d 1110, 1145 (N.D. Cal. 2019) (invalidating a patent because the claims failed to reflect the asserted improvements disclosed in the specification).

156. Compare *IBM Corp. v. Groupon, Inc.*, 289 F. Supp. 3d 596, 605 (D. Del. 2017) (contending that the claims reflected specificities for the specific architecture behind the claimed computer improvement by reciting how the screen display is generated), and *McRO, Inc.*, 837 F.3d at 1314 (explaining that the challenged claims had the specificity required to transform a claim from one claiming only a result to one claiming a way of achieving it), with *Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (noting that the claims did not require anything other than conventional computing and network components acting in ordinary manners despite arguments for disclosed benefits), *cert. denied*, 139 S. Ct. 378 (2018), and *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1344 (Fed. Cir. 2015) (invalidating patents for failing to disclose specificity in the abstract idea used in addressing a technological challenge).

157. See, e.g., *McRO, Inc.*, 837 F.3d at 1316 (finding that the claims encompassed the disclosed benefits of the specification).

158. See American Bar Association Section of Intellectual Property Law, Comment Letter on PTO’s 2019 Revised Patent Subject Matter Eligibility Guidance (Mar. 7, 2019), https://www.uspto.gov/sites/default/files/documents/eligibility2019comments_a_abaipl_2019mar07.pdf (contending that the 2019 PEG does not appear to require that improvements be explicitly recited in the claim language).

159. See *Openwave Sys., Inc. v. Apple, Inc.*, 808 F.3d 509, 514 (Fed. Cir. 2015) (discussing the importance of the specification in determining claim scope); see also *TNS Media Research, LLC v. Tivo Research & Analytics, Inc.*, 166 F. Supp. 3d 432, 450 (S.D.N.Y. 2016) (concluding that the claims must reflect any disclosed benefits but need not recite the benefits of the written description verbatim), *vacated*, 223 F. Supp. 3d 168 (S.D.N.Y. 2016).

160. See *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 219–21 (2014) (stating that the invention must harness scientific laws and principles to solve problems); *Mackay Radio & Telegraph Co. v. Radio Corp. of America*, 306 U.S. 86, 98–99 (1939) (suggesting that abstract principles must pose concrete applications).

field in a specific manner.¹⁶¹ In *Bascom*, the inventive concept of installing — at a specific, remote location — a filtering tool having customizable features for internet users harnessed a technological feature of network technology in a filtering system.¹⁶² Thus, there was a concrete application of internet filtering on generic components in the specific arrangement of technology such that the system allowed increased flexibility and decreased susceptibility to hacking.¹⁶³

b. 2019 PEG Versus Case Law

The determinations regarding improvement to technology appear stretched across Step 2A Prong 2 and Step 2B.¹⁶⁴ Under the 2019 PEG, patent examiners are currently instructed to determine whether an improvement to technology exists under Step 2A Prong 2.¹⁶⁵ However, the well-understood, routine, and conventional considerations that are evidence as to whether there is an improvement to technology are notably left in Step 2B of the 2019 PEG, thus following the Step 2A Prong 2 determination of whether an improvement to technology exists.¹⁶⁶ Therefore, Step 2B is not only redundant under the 2019 PEG, but it further creates a discrepancy in current examination procedures.¹⁶⁷ This discrepancy creates a divide in eligibility decisions between federal courts and the PTO. While examiners at the PTO must make determinations of improvement without considerations of conventionality, federal courts hinge decisions for improvements to technology on whether technological tools are merely

161. See *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 721–22 (Fed. Cir. 2014) (Mayer, J., concurring) (explaining the need to use judicial exceptions in accomplishing technological objectives); see, e.g., *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1351–52 (Fed. Cir. 2016) (distinguishing between claims of an abstract-based solution using generic components and a practical application of an abstract concept).

162. *Bascom Glob. Internet Servs., Inc.*, 827 F.3d at 1349–50 (finding that the invention overcame the abstract idea).

163. *Id.* at 1350.

164. See 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 53–56 (Jan. 7, 2019) (instructing the examiner to evaluate in Step 2A Prong 2 whether the claim improves technology, yet prohibiting the examiner from evaluating whether claim elements are conventional until Step 2B).

165. *Id.* at 53–56 (instructing examiners to determine whether a practical application exists).

166. *Id.* (instructing examiners to determine whether inventive concept exists).

167. See John P. Kong, *Key Practical Effects From the 2019 PEG*, WESTERMAN HATTORI DANIELS & ADRIAN LLP (Jan. 2019), http://www.whda.com/whda/assets/dynapsis/Key-Practical-Effects-From-2019-PEG-John_Kong.pdf (discussing the “conventional” considerations previously used in examination for improvements).

performing conventional activity.¹⁶⁸

i. Spotting Improvements

Determining improvements to technology is arguably subjective due to claim comparisons between pending claims and those set forth in guidance.¹⁶⁹ Improvements to computer functionality generate benefits to the way the computer works and are more objectively classified as improvements rooted in the computing field.¹⁷⁰ As examiners and courts are directed to precedent to determine whether improvements exist, merging considerations of improvements to computer functionality and technology may decrease subjectivity.¹⁷¹ Improvements to technology could also be evident in finding improvements to computer functionality. For example, the improved database in *Enfish* led to increased flexibility and smaller memory requirements in a computer.¹⁷² Additionally, the improved data compression techniques in *DDR Holdings* led to the dual-source hybrid webpage capability of the computer.¹⁷³ Therefore, improvements to computer functionality are likely results of improvements to technology. While this practice may aid the identification of improvements to technology, conflicting standards are brought to light under PTO standards since examiners are unable to consider conventionality of computing activities as seen in federal court considerations.¹⁷⁴

ii. The Woes of the 2019 PEG

Examiners are not permitted to evaluate “conventional” versus “unconventional” activity when determining improvements to technology

168. See, e.g., *Alarm.com Inc. v. ipDatatel, LLC*, 383 F. Supp. 3d 719, 728 (S.D. Tex. 2019) (stating that the court may find that the patent satisfies 35 U.S.C. § 101 if it is “clear that the specific improvements in the recited computer technology go beyond ‘well-understood, routine, conventional activit[ies]’”).

169. See, e.g., MPEP (9th ed. Rev. 24, Jan. 2018) § 2106 (highlighting federal case law as a means for comparison to pending claims).

170. *Id.*; *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1351–52 (Fed. Cir. 2016).

171. See MPEP (9th ed. Rev. 24, Jan. 2018) § 2106 (showing that examiners are to either directly or indirectly follow federal precedent); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016) (stating that the courts must look to federal precedent in eligibility decisions).

172. *Enfish, LLC*, 822 F.3d at 1335.

173. *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1259 (Fed. Cir. 2014).

174. See *Kong*, *supra* note 167 (discussing the divide in court decisions and examiner decisions under the 2019 PEG’s removal of the conventionality consideration from improvement determinations).

and are left with considerations of: (1) technological arts; (2) technological problems necessitating technological solutions; and (3) particular disclosure of benefits discussed in the specification and embodied in the claims. Determinations of whether claim elements pose conventional activity are notably left out of the evaluation for improvements to technology under the 2019 PEG.¹⁷⁵ However, the 2019 PEG references cases such as *Core Wireless*, *DDR Holdings*, and *Finjan*, which consider the conventional analysis when determining improvements to technology.¹⁷⁶ Moreover, the 2019 PEG instructs examiners to consult the MPEP, which highlights several cases including considerations of conventional versus unconventional activity.¹⁷⁷ As such, there not only exists a discrepancy between *Alice/Mayo* and the 2019 PEG, but within the 2019 PEG itself.

The examiner must determine under Step 2A Prong 2 whether the claim poses, *inter alia*, an improvement to technology, or conversely: (1) insignificant extra-solution activity; (2) general linking to a technological field; or (3) mere instructions to apply a judicial exception.¹⁷⁸ However, the determinations for extra-solution activity, general linking, and mere instructions to apply the judicial exception necessitate evaluations of well-understood, routine, and conventional activity.¹⁷⁹ Under *Alice/Mayo*, the examiner must determine whether a generic element performs well-understood, routine, or conventional activity to assess whether a claim qualifies for a potential improvement to technology.¹⁸⁰ Alternatively, the

175. See 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. 50, 55 (Jan. 7, 2019) (stating that the well-understood, routine, and conventional considerations are not evaluated in Step 2A Prong 2).

176. See *id.* at 7 n.25 (citing *Core Wireless*, *DDR Holdings*, and *Finjan* in the context of the “improvement to other technology or technological field” portion of the 2019 PEG); e.g., *DDR Holdings, LLC*, 773 F.3d at 1257 (finding that the claims posed a solution to problems seen in conventional systems).

177. 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 53 (discussing *Enfish* with respect to concrete improvements); see *Enfish, LLC*, 822 F.3d at 1337 (opining that the self-referential database functioned differently than conventional database structures).

178. See 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 56 (finding that a claim fails the eligibility test if the claim elements merely add insignificant extra-solution activity, generally link the judicial exception to a technological field, or amount to mere instructions to apply the judicial exception).

179. See, e.g., *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 82 (2012) (explaining that conventional post-solution activity does not amount to patentable subject matter).

180. See *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 225–26 (2014) (highlighting that claims involving a computer that fail to show differences from any other computer do not constitute significantly more than the abstract idea and generally link the abstract idea to the computer).

claim does not amount to an improvement to technology when generic claim elements performed, for example, insignificant extra-solution activity. It is unclear how the examiner can determine under Step 2A Prong 2 whether alleged generic elements are performing without evaluating whether the element is acting in a well-understood, routine, and conventional manner.¹⁸¹

The terms “generic” and “well-understood, routine, and conventional” are not to be intertwined. “Generic” refers to an element itself and “well-understood, routine, and conventional” refers to the element’s activity. For example, in *Bascom*, the court suggested that a generic computer’s implementation referenced the component’s activity in determining whether the invention posed an improvement.¹⁸²

iii. *Much Ado About Case Law*

The discrepancy between the improvement determinations of the district courts in *TNS Media Research* began with the “directed to” inquiry under the *Alice/Mayo* test.¹⁸³ Following these determinations, the courts disagreed about whether there was a technological solution to a technological problem.¹⁸⁴ The vacating court, in finding such improvements, considered the claim language for patent-validity.¹⁸⁵ In sum, the *TNS Media Research*

181. See 2019 Revised Patent Subject Matter Eligibility Guidance, 84 Fed. Reg. at 56 (instructing the examiner to consider whether the elements are performing insignificant extra-solution activity, are generally linking the judicial exception to a field of use, or are providing instructions to apply the judicial exception to a technology).

182. *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1351 (Fed. Cir. 2016) (differentiating between a technology-based solution and an abstract-idea-based solution implemented in a conventional way on a generic computer).

183. *Compare TNS Media Research LLC v. Tivo Research & Analytics, Inc.*, 166 F. Supp. 3d 432, 449 (S.D.N.Y. 2016) (finding that the claim was directed toward the abstract concept of double-blind matching), *with TNS Media Research LLC v. Tivo Research & Analytics, Inc.*, 223 F. Supp. 3d 168, 181 (S.D.N.Y. 2016) (disagreeing with the previous court’s double-blind matching determination and finding that the claims were directed at the concrete idea of data mining for diversified entities).

184. See *TNS Media Research LLC*, 223 F. Supp. 3d at 181 (highlighting the need for a change from conventional activity to purport an improvement before rendering the claims an improvement to technology); *Mortg. Grader, Inc. v. First Choice Loan Servs., Inc.*, 811 F.3d 1314, 1325 (Fed. Cir. 2016) (contending that claims which intend to improve the functioning of a computer may be eligible if the improvement consists of elements operating in an unconventional manner). *Compare TNS Media Research LLC*, 166 F. Supp. 3d at 448 (finding that the claims merely implemented a double-matching technique), *with TNS Media Research LLC*, 223 F. Supp. 3d at 181 (stating that the digital environment poses problems in obtaining data wherein the data, if captured, would pose enormous informative benefits).

185. See *TNS Media Research LLC*, 223 F. Supp. 3d at 181 (contending that the claims pose limited, concrete steps).

court determined that there existed a particular technological solution to a particular technological problem such that the invention could only be implemented on a computer.¹⁸⁶ The *TNS Media Research* court found that the invention offered a precise set of instructions to collect, store, analyze, and cleanse data.¹⁸⁷

District courts in the Northern District of California further disagree on what subject matter qualifies for conventional activity versus unconventional activity that effects an improvement on technology.¹⁸⁸ The District Court in *Fitbit* found that a method for detecting and recording the physical activity of a person was directed to an abstract idea of collecting and reporting data.¹⁸⁹ The court found that the challenged claims did not purport to effect an improvement in technology because any alleged benefits to the field of portable activity monitoring fail to amount to improvements in the portable activity device's capabilities.¹⁹⁰ The challenged claims are distinguishable from the method claims of *McRO*, which improved computer animation, and the *Enfish* claims, which improved database technology.¹⁹¹

This distinction further arises from the existence of an unconventional change to a technological component seen in *Enfish* and *McRO*.¹⁹² In light of *TNS Media Research*, the *Immersion* court incorrectly asserted that the *Fitbit* claims were ineligible due to the statutory class.¹⁹³ Further, the

186. See *id.* (stating that the claims disclosed concrete steps rather than high-level abstractions).

187. *Id.* at 182.

188. See *Immersion Corp. v. Fitbit, Inc.*, 313 F. Supp. 3d 1005, 1025–26 (N.D. Cal. 2018) (suggesting that the court's determination in *Fitbit, Inc. v. AliphCom*, No. 16-cv-00118-BLF, 2017 WL 819235, at *3 (N.D. Cal. Mar. 2, 2017), is incorrect in light of findings of unconventional changes to technology in *Thales Visionix, Inc. v. United States*, 850 F.3d 1343, 1345 (Fed. Cir. 2017)).

189. *Fitbit*, 2017 WL 819235, at *10 (stating that presenting results is nothing more than a mental process and can be done with a pencil and paper).

190. See *id.* (distinguishing the alleged benefits with improvements seen in *Enfish* and *McRO*).

191. See *id.* at **10, 15 (noting that *Enfish* and *McRO* claim subject matter that requires an improvement to technology (i.e., a tool) used in a technological field, and not just an incidental benefit to a technological field).

192. Compare *id.* at *12 (delineating that the structure of a wearable band with a motion detection component and LEDs did not pose unconventional changes to a tool in a technological field), with *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1337 (Fed. Cir. 2016) (clarifying that the self-referential database functioned differently than conventional database structures), and *McRO, Inc. v. Bandai Namco Games Am., Inc.*, 837 F.3d 1299, 1302–03 (Fed. Cir. 2016) (holding that the claims incorporated unconventional rules relating sub-sequences of phenomes, timing, and morph weight sets to solve a problem in conventional industry practice).

193. See *Immersion Corp.*, 313 F. Supp. 3d at 1025–26 (suggesting that the *Fitbit*

Immersion court's suggestion that the *Fitbit* claims may be eligible under *Thales Visionix Inc. v. United States* is incorrect in light of the unconventional arrangement of sensors seen in *Thales* not similarly seen in the wearable band of *Fitbit*.¹⁹⁴ *Immersion* thus demonstrates the conflicting standards of eligibility in the federal court system, thereby highlighting the need for congressional action.

c. The End of the Patent System as We Know It

Although the 2019 PEG purports to reduce subjectivity in the patent process, the patent community has found increased unpredictability in the application of the 2019 PEG.¹⁹⁵ Moreover, the Federal Circuit has failed to mitigate such disarray, thereby highlighting the need for congressional action.¹⁹⁶ If the federal courts are making determinations of patentability under *Alice/Mayo*, the PTO is making determinations under the 2019 PEG, and the Patent Trial and Appeals Board uses both tests, applicants are likely faced with difficulty in establishing sufficient evidence for the record in prosecuting and defending patents.¹⁹⁷ In particular, applicants must decide which guidelines suffice for the record to support prosecution at the PTO and defense at the federal court level. The 2019 PEG provides a lower bar for findings of eligibility than the *Alice/Mayo* test, and thus, applicants may be

claims were ineligible for claiming a method rather than a device). *But see* TNS Media Research, LLC v. Tivo Research & Analytics, Inc., 223 F. Supp. 3d 168, 181 (S.D.N.Y. 2016) (finding that the claimed method was not directed to an abstract idea).

194. *See Immersion Corp.*, 313 F. Supp. 3d at 1025 n.4 (suggesting that the *Fitbit* claims may be directed toward a particular, useful configuration of components). *Compare* *Thales Visionix, Inc. v. United States*, 850 F.3d 1343, 1348 (Fed. Cir. 2017) (finding that the unconventional utilization of inertial sensors results mitigates errors in conventional systems), *with Fitbit*, 2017 WL 819235, at *12 (finding no non-conventional arrangement of LEDs on the band and that each LED performs a conventional function).

195. *See* Bryan McWhorter & Russell Jeide, *2019 Eligibility Guidance Leads to Unpredictable Results at the PTAB*, KNOBBE MARTENS (Feb. 15, 2019, 12:00 PM), <https://www.knobbe.com/news/2019/02/2019-eligibility-guidance-leads-unpredictable-results-ptab> (explaining the Patent Trial & Appeals Board has, in some instances, adopted the guidance as controlling and, in other instances, mentioned the guidance in passing while ruling under the *Alice/Mayo* test).

196. *See* Gene Quinn, *It May Be Time to Abolish the Federal Circuit*, IP WATCHDOG (July 9, 2019), <https://www.ipwatchdog.com/2019/07/09/may-time-abolish-federal-circuit/id=111122/> (discussing the Federal Circuit's failure in policing the unpredictability of regional courts and in attempting to spur innovation through strong patents).

197. *See* Gvoth, *supra* note 20 (highlighting the ongoing uncertainty in applying 35 U.S.C. § 101 by the PTO and Federal Circuit).

confronted with inconsistent decisions in light of such unpredictability.¹⁹⁸ The University of Florida recently faced conflicts in eligibility standards when the Federal Circuit invalidated claims that are similar to those seen in the PTO examples set forth under the 2019 PEG.¹⁹⁹ Here, the claims were directed toward a bedside device that converted data streams from bedside machines regardless of the originating format.²⁰⁰ This claim appears to match Example 42 of the 2019 PEG, which recites an improvement to technology in claiming conversions of non-standardized formats of data from various sources to standardized formats.²⁰¹ While the claims are admittedly not identical, applicants must cover multiple bases in discussing both tests for eligibility, thereby overflowing the record, to ensure that there is sufficient protection for impending challenges.²⁰²

Frustrations among applicants vanquish the patent system as currently set.²⁰³ In particular, applicants likely will take inventions overseas in search of more predictable standards, rather than seeking patent protection in the United States.²⁰⁴ Business competition in the United States may fall as China and other competing countries will be at a greater advantage to collect

198. See Daniel Rose, *Federal Circuit's Decision in University of Florida Research Foundation v. General Electric Raises Questions with Subject Matter Eligibility Guidance*, FOLEY & LARDNER LLP: IP LITIG. CURRENT (Mar. 4, 2019), <https://www.foley.com/en/insights/publications/2019/03/federal-circuits-decision-in-university-of-florida> (discussing the discrepancy between the invalidation decision of *University of Florida Research Foundation v. General Electric* and Example 42 of the 2019 PEG).

199. See *Univ. of Fla. Research Found., Inc. v. GE*, 916 F.3d 1363, 1368-69 (Fed. Cir. 2019) (invalidating claims disclosing conversions from received data streams to an independent format to integrate data from bedside machines). But see U.S. PATENT & TRADEMARK OFFICE, *supra* note 56, at 17-19 (concluding that claims for conversions from non-standardized to standardized formats recited an improvement over prior art systems by allowing the real-time sharing of information in a standardized format independent of an original format).

200. *Univ. of Fla. Research Found.*, 916 F.3d at 1368.

201. U.S. PATENT & TRADEMARK OFFICE, *supra* note 56, at 17-19.

202. See DeCarlo & Zalepa, *supra* note 114 (instructing applicants to anticipate a multitude of challenges under various standards).

203. See Meredith Addy, *Confessions of a Frustrated Patent Attorney: The Telephone Call*, IP WATCHDOG (Oct. 1, 2017), <https://www.ipwatchdog.com/2017/10/01/confessions-frustrated-patent-attorney-telephone-call/id=88636/> (discussing the growing frustration of patent seekers due to expense and unpredictability of the patent system).

204. Eileen McDermott, *Judge Paul Michel: Look to Congress, Not Courts, to Fix the U.S. Patent System*, IP WATCHDOG (Apr. 4, 2019), <https://www.ipwatchdog.com/2019/04/04/judge-paul-michel-look-congress-not-courts-fix-u-s-patent-system/id=107948/> (contending that various problems in the U.S. patent system incentivize inventors to take investments overseas).

innovators seeking fair protection.²⁰⁵ Patents directly correlate with a thriving economy, and the United States will see a resultant dip in the economy if applicants are unable to file.²⁰⁶

If applicants decide to keep innovation in the United States, innovation will likely be encompassed in the hands of the few under the guise of promising protection in the world of trade secrets.²⁰⁷ Any imbalance in categories of protection will affect the respective systems.²⁰⁸ Vitiating the trade secret laws would likely lead to trivial filings in the PTO, and similarly, the end of the PTO would lead to increased action under trade secrets.²⁰⁹ However, decreased filings at the PTO could also affect the public domain.²¹⁰ The patent system strikes a bargain between public disclosure of scientific improvements and termed protection for the owner.²¹¹ Trade secrets may offer indefinite protection without necessitating disclosure.²¹² As such, business method patent seekers may privatize inventions of processes, thereby hindering the patent system and decreasing public access to innovation.²¹³

IV. CONGRESS SHOULD DEFINE ELIGIBLE SUBJECT MATTER AND IMPROVEMENTS TO TECHNOLOGY OR TECHNOLOGICAL FIELDS

Tensions between abstract ideas and the eligibility of business method patents stress the need for Congress to define what subject matter constitutes an abstract idea and to specify standards within that definition.²¹⁴ Congress

205. See *id.* (suggesting that China will dominate the market if there are no resolutions to the patent system).

206. *Id.*

207. See *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 483, 487–88 (1974) (highlighting the overlap between patents and trade secrets for processes).

208. *Id.* at 485 (suggesting that the PTO would be overburdened with patent applications if seekers of trade secrets applied for patents).

209. *Id.* (arguing that trade secrets are directed to ineligible material and would be doomed to be rejected at the PTO).

210. See Paul Michel & John Battaglia, *It Is Time to Fix the Courts' Section 101 Tests on 'Directed to . . . ' and 'Abstract Ideas'—Whether in Chamberlain or Beyond (Part I)*, IP WATCHDOG (June 9, 2020), <https://www.ipwatchdog.com/2020/06/09/time-fix-courts-section-101-tests-directed-abstract-ideas-whether-chamberlain-beyond-part/id=122302/> (highlighting the bargain of a limited protection in exchange for the disclosure of innovations).

211. *Kewanee Oil*, 416 U.S. at 490–91.

212. *Id.*

213. See Michel & Battaglia, *supra* note 210 (stressing that the current state of patent eligibility will undermine the innovation that the Patent Act purported to promote).

214. See *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016) (contending that the Federal Circuit must compare challenged claims to precedent since

should amend 35 U.S.C. § 101 such that the “abstract idea” category under the judicial exception is severely limited, thereby vitiating subjectivity.

The patent system was enacted to spur innovation in the economy, but now discourages innovation in the most modern technologies due to its inconsistencies and unpredictability.²¹⁵ Businesses thrive on the competitions to compile the most up-to-date technology into portfolios, and big and small businesses alike will suffer if the patent field loses steam. Businesses may look overseas in search of more consistent standards, thereby taking innovation away from the public. The current tensions between eligibility standards may drive the system to the extreme that 35 U.S.C. § 101 strove to prevent.

Congressional action would mitigate inconsistencies between the courts and agencies. Instead of acting as a safety net for restricting patentability, 35 U.S.C. § 101 should provide more defined standards for when to reject an invention that has a statutory class. Some members of the patent community agree that 35 U.S.C. § 101 acts as a safety net to reduce the number of patents that enter the market for the wrong reasons.²¹⁶ In setting forth consistent standards, Congress should adopt guidance similar to standards set forth in the 2019 PEG under PTO Director Andrei Iancu’s mission to bring eligibility in closer light with current technology.²¹⁷ Not only would such practice mitigate unpredictability, but the patent system would permit innovation without fear of court invalidation. By bringing a member of the “outside” in to direct the agency, all sides of the patent system have begun to collaborate in striving to understand eligibility.²¹⁸

the U.S. Supreme Court has yet to define “abstract idea”).

215. See John Dubiansky, *Competition Advocacy and the Patent System: Promoting Competitive Markets for Technology*, 25 B.U.J. SCI. & TECH. L. 145, 159 (2019) (citing FED. TRADE COMM’N, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION LAW AND POLICY 7 (2003)) (discussing the bargain between disclosing inventions with the public and receiving protection for an invention for a set time frame to provide incentives for innovation).

216. See Joe Mullin, *Experts Warn Congress: Proposed Changes to Patent Law Would Thwart Innovation*, ELEC. FRONTIER FOUND. (June 12, 2019), <https://www.eff.org/deeplinks/2019/06/it-should-be-clear-now-messing-patent-laws-section-101-bad-idea> (warning the Senate that 35 U.S.C. § 101 is a powerful tool in rejecting patent applications that should not be protected, thereby allowing small businesses room to innovate). But see Andrei Iancu, *The Current State of Innovation within the U.S. Legal System — Views on Evolving Protection for Intellectual Property Rights in the United States from the USPTO and the Courts*, 101 J. PAT. & TRADEMARK OFF. SOC’Y 11, 17–18 (2019) (stating that eligibility must align with the current state of technology such that there are fewer rejections under 35 U.S.C. § 101).

217. Iancu, *supra* note 216, at 13.

218. See Dorit Rubinstein Reiss, *The Benefits of Capture*, 47 WAKE FOREST L. REV.

Congress should implement a revised standard for eligibility based on the improvement standard set forth herein and the 2019 PEG. Additionally, Congressional action should include clarifications to the improvement to technology standard. If Congress adopts the 2019 PEG, the technology standard should be clarified for compatibility with case law precedent.

V. CONCLUSION

Monopolization of judicial exceptions could impede rather than promote innovation, “thereby thwarting the primary object of the patent laws.”²¹⁹ However, if patent eligibility is too restrictive, such unforgiving restrictions could result in the impediment of innovation. Bringing eligibility standards in line with current states of technological innovation is the best option for saving the patent system and for continuing to promote business growth. The 2019 PEG, in purporting to streamline examination procedures, is actually increasing eligibility rates over what is seen in the federal courts under the *Alice/Mayo* test. The differing requirements create a discrepancy in eligibility determinations between the agency and the courts. The Patent Trial and Appeals Board is currently caught between a rock and a hard place because it must choose which test to apply. This election of which test to apply results in randomized outcomes. The patent system may become stifled as applicants are restricted in the subject matter they believe they can patent. For this reason, Congress must step in to clearly define what subject matter may constitute an eligible patent, and clarify the precedent for improvements to technology or technological fields.

569, 573 (2012) (arguing that “capture” allows collaboration and offers benefits to agencies and the public).

219. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014).